AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for sharing multiple resources among users using an arbiter comprising:

    allocating a first of the resources speculatively to one of the users for use during an access interval, absent a request for the first resource from the one of the users,

    wherein speculatively allocating the first resource comprises allocating the first resource according to one of a fixed priority scheme and a scheme allocating the resource to the user with the fewest requests,

    wherein the arbiter receives an indication from at least one user as to whether the user wishes to be speculatively granted a resource.

2. (Original) The method as recited in claim 1 further comprising allocating at least a second of the resources for use during the access interval according to a request received by the arbiter for the second resource.

3. (Previously Presented) The method as recited in claim 4 wherein the arbiter speculatively allocates the first resource to the one of the users according to the one of the users being granted a request for use of one of the resources during a previous arbitration cycle.

4. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

    allocating a first of the resources speculatively to one of the users for use during an access interval, absent a request for the first resource from the one of the users,

    wherein the arbiter speculatively allocates the first resource to the one of the users according to the one of the users having requested the first resource during a previous arbitration cycle.

5. (Original) The method as recited in claim 4 wherein when multiple requesters requested the first resource during the previous arbitration cycle, the arbiter speculatively allocates the first resource to the one of the users according to one of a round-robin scheme and a pseudo random scheme.

6. (Original) The method as recited in claim 4 wherein when multiple requesters requested the first resource during a predetermined number of previous arbitration cycles, the arbiter speculatively allocates the first resource according to which of the users had the most requests for the first resource, during the predetermined number of previous arbitration cycles, the predetermined number being one or more arbitration cycles.

7. (Previously Presented) The method as recited in claim 9 wherein speculatively allocating the first resource comprises allocating the first resource according to which of the users received the most grants for the first resource during a predetermined number of previous arbitration cycles.

8. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

> allocating a first of the resources speculatively to one of the other users for use during an access interval, absent a request for the first resource from the one of the users,
>
> wherein speculatively allocating the first resource comprises allocating the first resource according to which of the users had the most requests for all resources combined, for a predetermined number of previous arbitration cycle.

9. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

> allocating a first of the resources speculatively to one of the users for use during an access interval, absent a request for the first resource from the one of the users,
>
> wherein speculatively allocating the first resource comprises allocating the first resource according to which of the users had the most grants for a predetermined number of previous arbitration cycles.

10. (Canceled)

11. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

> allocating a first of the resources speculatively to one of the users for use during an access interval, absent a request for the first resource from the one of the users,

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wherein speculatively allocating the first resource comprises allocating the first resource according to a fill level of at least one of a send queue and a receive queue associated respectively with a user and resource for an arbitrated data transfer.

12. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

allocating a first of the resources speculatively to one of the users for use during an access interval, absent a request for the first resource from the one of the users,

wherein the maximum number of resources unallocated by the arbiter for a particular access cycle are speculatively allocated for use during the particular access cycle.

13. (Cancelled)

14. (Previously Presented) The apparatus as recited in claim 22, wherein the arbiter further receives a specified set of one or more resources indicating which resources the user is interested in being speculatively granted.

15. (Original) The method as recited in claim 1 wherein the arbiter receives an indication from at least one resource as to whether the one resource wishes to be speculatively granted to a user.

16. (Original) The method as recited in claim 1 wherein real-time requests are speculatively allocated by the arbiter.

17. (Original) The method as recited in claim 1 further comprising speculatively granting more than one resource, including the first resource, to the one of the users, thereby allowing for a multicast operation.

18. (Original) The method as recited in claim 17 wherein information transfers associated with the multicast operation identify target resources of the multicast operation, thereby allowing resources to selectively accept information transferred by the multicast operation.

19. (Original) The method as recited in claim 1 wherein the resources are storage locations and the users are processors.

20. (Original) The method as recited in claim 1 wherein the resources are communication links and the users are communicatively coupled to the communication links.

21. (Canceled)

22. (Previously Presented) An apparatus comprising:

　　　a plurality of users;

　　　an arbiter coupled to receive requests for use of resources by respective users, the arbiter responsive to speculatively allocate a resource to one of the users for use during an access interval, absent a request from the one user for the resource;

　　　wherein the arbiter receives an indication from one or more of the users as to whether the user wishes to be speculatively granted a resource.

23. (Original) The apparatus as recited in claim 22 wherein the arbiter allocates at least a second resource for use during the access interval according to a request received by the arbiter for the second resource.

24. (Original) The apparatus as recited in claim 22 wherein the arbiter speculatively allocates the at least one resource to the one of the users according to the one of the users having been granted a request for the resource during a previous arbitration cycle.

25. (Original) The apparatus as recited in claim 22 wherein the arbiter speculatively allocates the at least one resource to the one of the users according to the one of the users having requested the one resource during a previous arbitration cycle.

26. (Original) The apparatus as recited in claim 25 wherein when multiple requesters requested the at least one resource during the previous arbitration cycle, the arbiter is responsive to speculatively allocate the at least one resource to the one of the users according to one of a round-robin scheme and a pseudo random scheme.

27. (Original) The apparatus as recited in claim 25 wherein when multiple requesters requested the at least one resource during a predetermined number of previous arbitration cycles, the arbiter speculatively allocates the at least one resource according to which of the users had the most requests for at least one resource, during the predetermined number of previous arbitration cycles, the predetermined number being one or more.

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28. (Previously Presented) An apparatus comprising:

a plurality of users;

an arbiter coupled to receive requests for use of resources by respective users, the arbiter responsive to speculatively allocate a resource to one of the users for use during an access interval, absent a request from the one user for the resource,

wherein speculatively allocating the at least one resource comprises allocating the at least one resource according to which of the users received the most grants for that at least one resource or made the most requests for at least one resource, during a predetermined number of previous arbitration cycles.

29. (Original) The apparatus as recited in claim 22 wherein speculatively allocating the at least one resource comprises allocating the at least one resource according to which of the users received the most grants or made the most requests, for a predetermined number or previous arbitration cycles.

30. (Original) The apparatus as recited in claim 22 wherein speculatively allocating the at least one resource comprises allocating the at least one resource according to a fixed priority scheme.

31. (Original) The apparatus as recited in claim 22 wherein a maximum number of resources unallocated by the arbitration logic for a particular access cycle in response to requests are speculatively allocated for use during the particular access cycle.

32. (Canceled)

33. (Cancelled)

34. (Previously Presented) An apparatus comprising:

a plurality of users;

an arbiter coupled to receive requests for use of resources by respective users, the arbiter responsive to speculatively allocate a resource to one of the users for use during an access interval, absent a request from the one user for the resource; and

wherein the arbiter speculatively grants more than one resource, including the at least one resource, to the one of the users, thereby allowing for multicast operations.

35. (Original) The apparatus as recited in claim 22 wherein the resources are memories and the users are processors.

36. (Previously Presented) The apparatus as recited in claim 34 wherein the resources are communication links and the users are communicatively coupled to the communication links.

37. (Canceled)

38. (Canceled)

39. (Previously Presented) A method of allocating resources in a system comprising:

    arbitrating during a first arbitration cycle, requests received prior to a beginning of the first arbitration cycle, the requests for utilization of one or more of the resources during a particular usage interval;

    allocating at least a second of the resources unallocated during the first arbitration cycle, prior to a start of the particular usage interval; and

    wherein the at least one resource is allocated utilizing a second arbitration cycle, subsequent to the first arbitration cycle, the second arbitration cycle arbitrating those requests received after the start of the first arbitration cycle.

40. (Original) The method as recited in claim 39 wherein the least one resource is allocated speculatively.

41. (Canceled)

42. (Previously Presented) The method as recited in claim 39 wherein the second arbitration cycle is shorter than the first arbitration cycle.

43. (Original) An apparatus comprising:

    an arbiter coupled to supply control information for use of resources;

    the arbiter coupled to receive requests from users for use of the resources during a particular access interval, the arbiter responsive to a first group of requests received prior to the start of a first arbitration cycle to determine allocation of the resources during the first arbitration cycle according to the first group of requests

and to receive at least a second plurality of requests after the start of the first arbitration cycle, and to determine additional allocation of the resources according to the second group of requests during a second arbitration cycle, the second arbitration cycle being shorter than the first arbitration cycle, the first and second arbitration cycles allocating resources for use during the particular access interval.

44. (Canceled)

45. (Previously Presented) The method as recited in claim 4 wherein real-time requests are speculatively allocated by the arbiter.

46. (Previously Presented) The method as recited in claim 4 further comprising speculatively granting more than one resource, including the first resource, to the one of the users, thereby allowing for a multicast operation.

47. (Previously Presented) The method as recited in claim 39 wherein real-time requests are speculatively allocated by the arbiter.

48. (Previously Presented) The method as recited in claim 39 further comprising speculatively granting more than one resource, including the first resource, to the one of the users, thereby allowing for a multicast operation.

49. (Previously Presented) The apparatus as recited in claim 43 wherein real-time requests are speculatively allocated by the arbiter.

50. (Previously Presented) The apparatus as recited in claim 43 wherein the arbiter speculatively grants more than one resource, including the first resource, to the one of the users, thereby allowing for a multicast operation.

51. (New) A method for sharing multiple resources among users using an arbiter comprising:
    allocating a first of the resources speculatively to one of the users for use during an
        access interval, absent a request for the first resource from the one of the users,
    wherein speculatively allocating the first resource comprises using a scheme allocating
        the resource to the user with the fewest requests.